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## NOTICE OF ALLOWANCE AND FEE(S) DUE

27868

7590

09/28/2009

JOHN F. SALAZAR  
MIDDLETON & REUTLINGER  
2500 BROWN & WILLIAMSON TOWER  
LOUISVILLE, KY 40202

EXAMINER

DRODGE, JOSEPH W

ART UNIT

PAPER NUMBER

1797

DATE MAILED: 09/28/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,365	12/30/2003	Kyung-Ju Choi	ZM921/05025	7814

TITLE OF INVENTION: METHOD OF FORMING SPACED PLEATED FILTER MATERIAL AND PRODUCT OF SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/28/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to:** Mail **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** **(571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27868 7590 09/28/2009

**JOHN F. SALAZAR**  
**MIDDLETON & REUTLINGER**  
**2500 BROWN & WILIAMSON TOWER**  
**LOUISVILLE, KY 40202**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,365 12/30/2003 Kyung-Ju Choi ZM921/05025 7814

**TITLE OF INVENTION: METHOD OF FORMING SPACED PLEATED FILTER MATERIAL AND PRODUCT OF SAME**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DRODGE, JOSEPH W	1797	210-488000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2  
 3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/748,365

12/30/2003

Kyung-Ju Choi

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EXAMINER

DRODGE, JOSEPH W

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JOHN F. SALAZAR  
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LOUISVILLE, KY 40202

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 125 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 125 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## Interview Summary

**Application No.**

10/748,365

**Applicant(s)**

CHOI, KYUNG-JU

**Examiner**

Joseph W. Drodge

**Art Unit**

1797

All participants (applicant, applicant's representative, PTO personnel):

(1) Joseph W. Drodge.

(3) \_\_\_\_\_.

(2) James Cole.

(4) \_\_\_\_\_.

Date of Interview: 18 September 2009.

Type: a) ☒ Telephonic b) ☐ Video Conference

c) ☐ Personal (copy given to: 1) ☐ applicant

2) ☐ applicant's representative

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.

If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 36 and 62.

Identification of prior art discussed: Generally all.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: An Examiner proposed & negotiated Examiners Amendment was agreed to so as to better distinguish the claims over recently applied prior art in language supported by the Instant Specification.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Joseph W. Drodge/  
Primary Examiner, Art Unit 1797

**Notice of Allowability**

Application No.

10/748,365

Examiner

Joseph W. Drodge

Applicant(s)

CHOI, KYUNG-JU

Art Unit

1797

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 4/03/2009.
2. ☒ The allowed claim(s) is/are 36-63.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 20090918.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. --

Claim 36. (Currently Amended) A pleated fluid filter arrangement comprising: at least one layer of fluid filter media pleated into a plurality of longitudinally extending adjacent opposed successive pleat flanks of selected depth and spacing between successive pleat flanks to provide spaced upstream and downstream filter face crests; each of said successive pleat flanks comprising a single plane having a first side and a second side manufactured to have minimal wave formation and being spaced by pairs of engaging adhesive increments of formed material of selected length applied to opposed sides of said successive pleat flanks ~~and that~~ directly engage each of said first and second sides of each of said single plane at preselected distances from said filter face crests, said flank planes adjacently extending with said selected lengths centrally oriented between and spaced from said spaced upstream and downstream filter face crests, said first side having at least one of said adhesive increments of formed material and said second side having at least one of said formed material adhesive increments wherein said at least one of said adhesive increments of a first side of one of said successive pleat flanks engages said at least one said adhesive increments of second side of an adjacent said successive pleat flank each increment of said pair of adhesive increments having a longitudinal axis, said pair of longitudinal axes being substantially aligned on said at least one

layer of fluid filter media.

Claim 37. (Currently amended) The pleated fluid filter arrangement of claim 36, said increments of said spaced formed material increments being selected from a suitable fluid pliable adhesive.

Claim 62. (Currently Amended) A pleated fluid filter arrangement comprising: at least one layer of fluid filter media pleated into a plurality of longitudinally extending adjacent opposed successive pleat flanks of selected depth and spacing between successive pleat flanks to provide spaced upstream and downstream filter face crests; said successive pleat flanks having a singularly planar configuration formed in a pleating zone with a back and forth reciprocating motion of a reciprocating mechanism between opposed media faces so as to have minimal wave contour formation and being spaced by pairs of engaging adhesive increments of selected length of formed material adjacently extending with said selected lengths centrally oriented between and spaced from said upstream and downstream filter face crests, each of said pairs of increments having a first end and a second end wherein one of said first and second ends is wider than the other of said first and second ends in a direction parallel to said filter face crests, said pairs of increments of formed material being directly adhered to each of the opposed planar surfaces of said adjacent opposed successive pleat flanks so that each of said successive pleat flanks has a first face and a second face and each of said first face and said second face has one of said adhesive increments of formed adhesive material adhered directly thereto, said pairs of engaging increments being longitudinally aligned and normal to said filter face crests.

Replace paragraph 27 of the Specification with the following paragraph:

[0027] Referring to FIG. 1 of the drawings, a supply roll 2 of a suitably selected fluid pervious filter media 3 is disclosed. Filter media supply roll 2 can be rotated by a suitably controllable motor (not shown), which feeds from a supply zone the suitable fluid layer of filter media 3 directly to a scoring zone 4. The fluid layer of filter media 3 can be any one of several types of fluid pervious air filtration media known in the air filtration art. In one advantageous embodiment of the present invention, the filter media 3 can be selected to be of a nature such as shown in aforementioned ~~related co-pending patent application~~ U.S. Ser. No. 10/317,437, filed Dec. 12, 2002, by Kyung-Ju Choi Patent No. 7,097,684. In another such advantageous embodiment of the present invention, the filter media can be synthetic fibrous materials or synthetic materials in conjunction with a cellulose material.

Replace paragraph 34 of the Specification with the following paragraph:

[0034] As in the ~~aforenoted related co-pending patent application~~ referenced Patent 7,097,684, the strips in the first and second spacer application zones 13 and 17 can be formed from thermobondable plastic materials which can incorporate a small percentage by weight of calcium carbonate, clay, phosphate derivatives or halogenic derivatives to enhance flame retardancy and reduce costs with spacing in the range of one (1) to four (4) inches. The thickness of the applied spacer materials in accordance with one feature of the present invention can be carefully selected so as to optimize pleat spacing and fluid resistance. As in the ~~related co-pending application~~ Patent 7,097,684, in one advantageous embodiment of the present invention with pleat depth of three quarters ( $\frac{3}{4}$ ) inches, the adhesive spacers can have an optimum thickness of



approximately zero point one (0.1) inches and advantageously, the peak sharpness can be in the range of zero point zero one (0.01) to zero point two (0.2) inches.

Replace paragraph 46 of the Specification with the following paragraph:

[0046] As in above ~~noted related co-pending application~~ referenced Patent 7,097,684, the pleated filter media layer 3 is then passed along endless conveyor belt 24 to a final cutting and assembly zone or station herein schematically shown as reference numeral 26. As afore described, flat packs of inventive filter media can be mounted in suitably selected border flames (not shown).

Authorization for this examiner's amendment was given in a telephone interview with James E. Cole on September 18, 2009.

The following is an examiner's statement of reasons for allowance: Claim 36 and claims dependent therefrom now clearly distinguish over Kahler and all other prior art of record in view of recitation of successive pleat flanks being spaced by pairs of engaging adhesive increments of selected length applied to opposed sides of the successive pleat flanks that directly engage each of the first and second sides of the pleat flanks and directly engage the first and second sides of the pleat flanks at preselected distances from the filter face crests. Kahler represents the closest prior art. Possible combining of embodiments of Kahler would result in such pairs of engaging adhesive increments of preselected length, however directly engaging only the filter face crests, not at preselected distances from the crests. Such combination of features advantageously and non-obviously results in facilitating non-obvious methods of filter manufacture and more securely maintains spacing between filter pleat flanks with minimizing reduction of fluid therethrough.

Claim 62 and claims dependent therefrom now clearly distinguish over Kahler and all other prior art of record in view of recitation of successive pleat flanks being spaced by pairs of engaging adhesive increments of selected length adjacently extending with said selective lengths centrally oriented between and spaced from the upstream and downstream filter face crests, with each of said pairs of increments having 1st and 2<sup>nd</sup> ends with one of the ends being wider than other of ends in a direction parallel to said filter crests. Kahler represents the closest prior art. Possible combining of embodiments of Kahler would result in such pairs of centrally oriented and engaging adhesive increments of preselected length, optionally being wider in directions extending outwardly from the filter pleat flanks or transverse to the filter face crests {as suggested in Kahler and other applied prior art of record}, however not parallel to the filter face crests as now claimed. Such combination of features advantageously and non-obviously results in facilitating non-obvious methods of filter manufacture and more securely maintains spacing between filter pleat flanks with minimizing reduction of fluid therethrough.

Changes made to Claim 36 are supported by Figures 3 and 4 and Paragraph 36 of the Instant Specification, while changes made to claim 62 are supported by Paragraphs 36 and 37 of the Instant Specification together with Figures 3 and 4. Claim 37 was amended to eliminate a possible 112, 2<sup>nd</sup> paragraph problem and the Specification was amended to update status of a repeatedly reference as a now issued patent rather than co-pending application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

Art Unit: 1797

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

JWD

9/21/2009

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797